



demEAUmed policy brief:

Water reuse legislations in the Mediterranean tourist facilities and possible recommendations

“Every year in Europe more than 40,000 million m³ of wastewater are treated, but only 964 million m³ (2.4%) of this treated wastewater is reused, less than 0.5% of annual European freshwater withdrawals” (European Commission)

The problem of water and tourism in Mediterranean areas

Despite Europe is, on average, being classified as non-water-stressed, water scarcity conditions created by population growth, urbanism and tourism have influenced highly populated areas in the Mediterranean countries in recent years.¹

Two issues influence the Mediterranean countries:

- Water resources are limited and unequally distributed in space and time.
- The Mediterranean is one of the world’s top tourist destinations, attracting an increasing number of people because of good weather conditions and stunning natural scenery.

Tourism activities increase pressures on water resources, and this is exacerbated in case of higher water stress and lower precipitation. A tourist consumes 3 to 4 times more water per day than a permanent resident (who consumes between 100 and 200 litres per person per day)². Moreover, tourism-related water consumption is not limited to food, drink and personal hygiene, but also includes consumption related to other activities such as swimming pools, spas, golf, etc.

In summary, if the constant increase of tourism rate in the Mediterranean region is considered, regulations should be promoted for the use of alternative water sources (e.g. reclaimed water) in order to reduce the pressures and lessen the environmental impacts related to water consumption in tourist facilities.

¹ <https://www.eea.europa.eu/data-and-maps/indicators/use-of-freshwater-resources-2/assessment-2>

² <https://www.eea.europa.eu/soer-2015/europe/tourism>

EU legislation on water reuse

At the European level, no legal instruments concerning water reuse are available. However, few initiatives have been recently developed in order to flag the issue of harmonized regulations for water reuse in Europe.

Some European countries have developed their own regulations, defining the acceptable uses for treated wastewater. Examples of countries with existing regulation or guidelines at the national level for water reuse applications are: Cyprus, France, Greece, Italy, Portugal, and Spain.

The lack of harmonization in water reuse regulations among EU countries makes the comparison between different previously defined regulations or guidelines difficult. Currently, each member state develops its own regulation on water reuse, by establishing the water uses that are permitted, the water quality parameters to be monitored and the limit values for water quality. Nowadays, the accepted reuse possibilities of treated waste-water in the different member states are the following: irrigation (including: green areas, private gardens, golf courses and crops or trees not consumed by humans), cleaning (streets or some industrial uses), fire hydrants, aquaculture, supply to sanitary appliances, cooling towers and evaporative condensers, aquifer recharge, silviculture or environmental uses (maintenance of wetlands).

Water reuse in Mediterranean tourist facilities

Most Mediterranean tourist facilities consume large amount of water, due to high water consumption for swimming pools or golf course, among others. Since no regulation specifies the waste-water treatment procedure to be applied in tourist facilities, greywater and wastewater/blackwater are usually collected without separation and subsequently treated onsite or in an urban wastewater treatment plant.

Some Mediterranean resorts are implementing eco-friendly practices such as water saving devices in bathrooms and internal treatment and reuse of some effluents (e.g. water from shower and sink for supply to sanitary appliances) in limited applications, such as garden irrigation. However, these are not necessarily part of a comprehensive strategy of the sector.

Recommendations following demEAUmed project

Existing barriers to reuse of wastewater and greywater have to be solved in order to reduce the environmental impact of current water consumption in Euro-Mediterranean areas and diversify water sources.

The main barriers and improvement measures detected during the demEAUmed project are the following:

	Barrier	Improvement measures
Social	Low public/governmental awareness and acceptance on water reuse	Awareness campaigns to explain environmental and economic benefits of water reuse practices Involvement of all the stakeholders at early stages of water reuse projects
	Consumer's lack of confidence in the health and environmental safety	Public information programmes about water security of urban water cycle management
Economic	Water reuse economic viability	Design of specific water pricing policies Provision of adequate incentives (administrative, institutional and financing) to develop water reuse projects
Technological	Low efficiency, reliability or knowledge of water reclamation treatment processes	Implement small-scale decentralized water reclamation treatment processes/plants Promote funding programmes for water reuse technology development
Policy	Lack of harmonization of water reuse legislation at European level	Develop harmonized and adequate water reuse standards at the European level, including the establishment of water quality parameters to be monitored and limit values
	Disregards local conditions and feasibility conditions with respect to the implementation of water reuse standards	Develop a flexible, legally-binding framework on water reuse at the European level

The demEAUmed project has defined an optimal and versatile water reuse treatment strategy within a hotel, bringing together innovative technologies to treat greywater, wastewater and for alternative pool water disinfection and, therefore, reduce freshwater consumption in touristic facilities. The project has developed a combination of several technologies (UVOX, Solar Photoelectro-Fenton, VertECO, Smart Air MBR, Plimmer-CDI, Electrocoagulation-Flotation, UV 172 nm and Electrochemical Ozonation) which have been applied to those water flows that require specific treatments, in order to reduce the environmental and social impacts of touristic activities linked to water consumption. The inclusion of these water treatment technologies is an example of sustainable tourism, which protects local natural water resources.

To read more about demEAUmed innovative solutions and results, please visit demEAUmed official website www.demEAUmed.eu



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